- FSA and ASHPO should communicate with any participating tribes to integrate planning with cultural resource protection and mitigation of adverse impacts, as well as soliciting input on the identification and protection of any TCPs.

Water Resources

- Installation of CPs may involve the clearing of vegetation and some soil disturbance. These activities may result in high levels of sediment runoff, resulting in temporary adverse impacts to surface water quality. The use of filter fencing or similar measures would reduce these impacts.

Soil Resources

- Short-term disturbances to soils during implementation of CPs may include tilling or installation of various structures such as fences, breakwaters, and roads. These activities may result in temporary increases in soil erosion. The use of silt fencing, filter fabric, or similar measures would reduce these impacts.

Air

- Implementation of the proposed CPs may include activities such as tilling and burning. This may temporarily increase particulate matter and other pollutants and adversely impact local air quality. Impacts would be minimized by measures such as watering exposed soil before and after tilling and burning in moderation and only in approved weather conditions.

- Installing various structures such as roads, firebreaks, and fences may require the temporary use of heavy-duty diesel construction vehicles. Primary emissions from construction vehicles include carbon monoxide and some particulate matter. BMPs would be used during construction activities to reduce the amount of emissions.

7.0 LIST OF PREPARERS

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8.0 PERSONS AND AGENCIES CONTACTED

Table 8.1 shows the Federal, State, and local agencies; American Indian tribes; and interest groups contacted for the CREP PEA.

Table 8.1 CREP PEA consultation.

Name	Title	Agency
Mark Sattelberg		FWS Formal Consult
Cathie Matthews		ASHPO Formal Consult
Anoatubby, Bill	Governor	Chickasaw Nation
Barbry, Earl, Sr.	Tribal Chairman	Tunica-Biloxi Tribe of Louisiana, Inc.
Berry, John	Tribal Chairman	Quapaw Tribe of Oklahoma
Blackmon, W.A.	President	Arkansas Cattlemen's Association
Butler, Bob	Regional Director	Arkansas Ducks Unlimited Field Station
Carruth, David	President	Arkansas Wildlife Federation
Devine, Marcus C.	Director	ADEQ
Edwards, James Lee	Governor	Absentee Shawnee Tribe
Ellis, A.D.	Principal Chief	Muscogee (Creek) Nation of Oklahoma
Emarthle, Alan	Cultural Preservation Officer	Seminole Nation of Oklahoma
Enyart, Charles	Chief	Eastern Shawnee Tribe of Oklahoma
French, Edgar L.	President	Delaware Nation
Gray, Jim	Principal Chief	Osage Nation
Greene, Richard	Regional Administrator	EPA Region 6
Haak, Bill	President	Benton County Farm Bureau
Hathaway, Randy	Planning, Environmental, and Regulatory Division	USACE, Little Rock District Office
Henderson, Scott	Chairman	AGFC
Hickie, Kevin	Washington County Forester	Arkansas Forestry Commission
Hooks, Glen	Associate Regional Representative	Sierra Club, Arkansas Chapter
Hornsby, Pete	President	Washington County Farm Bureau
Jackson, Mitchell	Crawford County Forester	Arkansas Forestry Commission
Jones, James	Crawford County Ranger	Arkansas Forestry Commission
Lawrence, Jeff	Senior Regional Director	Ducks Unlimited
Martin, Phillip	Chief	Mississippi Band of Choctaw Indians
McAdams, Gary	President	Witchita and Affiliated Tribes
Murray, Elizabeth	Coordinator	Arkansas Multi-Agency Wetland Planning Team Coordination Office
Ornesby, Wayne	Benton County Forester	Arkansas Forestry Commission

Table 8.1 Continued

Name	Title	Agency
Parker, LaRue	Chairperson	Caddo Nation
Pyle, Greg	Chief	Choctaw Nation of Oklahoma
Robertson, Gene	President	Crawford County Farm Bureau
Rodriguez Balandran, Olivia	Associate Director	EPA Region 6, Office of Environmental Justice and Tribal Affairs
Shannon, John T.	Director	Arkansas Forestry Commission
Shook, Doyle	President	The Wildlife Society, Arkansas Chapter
Simon, Scott	State Director	TNC of Arkansas
Smith, Chad	Principal Chief	Cherokee Nation of Oklahoma
Smith, Karen	Director	ANHC
Smith, Kenneth	Executive Director	Audubon Society Arkansas
Sparkman, Ron	Chairman	Shawnee Tribe of Oklahoma
Spears, Dennis	Washington County Ranger	Arkansas Forestry Commission
Stowe, George	Benton County Ranger	Arkansas Forestry Commission
Wickliffe, George	Chief	United Keetoowah Band of Cherokee Indians in Oklahoma
Young, J. Randy, P.E.	Executive Director	ANRC

9.0 GLOSSARY

Algae Bloom—Rapid and flourishing growth of algae in and on a body of water.

Aquifer—An underground formation capable of storing and yielding significant quantities of water; usually composed of sand, gravel, or permeable rock.

Candidate Species—A species of plant or animal being considered for listing by the FWS as threatened or endangered due to declining numbers in all or part of its range.

Community Type—A unique combination of plants and animals that occur in a particular location and are adapted to similar environmental conditions.

Conservation—The management of human and natural resources to provide maximum benefits over a sustained period of time. Conservation practices focus on conserving soil, water, energy, and biological resources.

Conservation Practice—Any technique or measure used to protect soil and water resources for which standards and specifications for installation, operation, or maintenance have been developed.

Cost Sharing—Payments to producers to cover a specified portion of the cost of installing, implementing, or maintaining a conservation practice.

Cropland—A land use/land cover category that includes five components: cropland harvested, crop failure, cultivated summer fallow, cropland used only for pasture, and idle cropland.

Dissolved Oxygen—Amount of free oxygen found in water; most commonly used measurement of water quality.

Ecosystem—A level of organization within the living world that includes both the total array of biological organisms present in a defined area and the chemical/physical factors that influence the plants and animals in it; all biological and non-biological variables within a defined area.

Edge Area—An area of change from one distinct ecosystem to another distinct ecosystem (e.g., forest to field).

Endangered Species—A species of plant or animal that is federally designated as threatened with extinction throughout all or a significant portion of its range.

Erosion—The removal and loss of soil by the action of water, ice, gravity, or wind.

Ethnicity—A person either of Hispanic or Latino origin and any race, or not of Hispanic or Latino origin and any race.

Extreme Poverty Area—An area in which at least 40 percent of the residents are below the poverty threshold.

Farm Income—The earnings of a farming operation over a given period of time, measured by several factors: 1) Gross cash income is the sum of all receipts from the sale of crops, livestock, and farm-related goods and services, as well as all forms of direct payments from the government. 2) Gross farm income is the same as gross cash income with the addition of non-money income, such as the value of home consumption of self-produced food and the imputed gross rental value of farm dwellings. 3) Net

cash income is gross cash income less all cash expenses such as for feed, seed, fertilizer, property taxes, interest on debt, wages to hired labor, contract labor and rent to non-operator landlords. 4) Net farm income is gross farm income less cash expenses and non-cash expenses, such as capital consumption, perquisites to hired labor, and farm household expenses. 5) Net farm income is a longer-term measure of the ability of the farm to survive as a viable income-earning business. 6) Net cash income is a shorter-term measure of cash flow.

Floodplain—The lowland that borders a stream or river and is found outside of the floodway. It is usually dry, but subject to flooding.

Fluvial—Pertaining to rivers or streams.

Flyway—A general term used to describe common migrating patterns among different bird species, based on definite geographic regions.

Groundwater—Water in the porous rocks and soils of the Earth's crust; a large proportion of the total supply of fresh water.

Herbicide—A type of pesticide used to kill or control vegetation.

Hispanic or Latino Origin—A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race.

Hydrology—The study of the distribution, movement, and chemical makeup of surface and ground waters.

Introduced Species—Species that have evolved elsewhere and have been transported and purposely or accidentally disseminated by humans. Other terms used to describe these species are alien, exotic, non-native, and non-indigenous.

Invasive Species—A species that is non-native to the ecosystem under consideration, and whose introduction causes or is likely to cause harm to the economy, environmental, or human health.

Karst—A type of topography formed by the dissolution of carbonate rocks and characterized by caves, sinkholes, and underground drainage.

Low-income—Individuals or households falling below the poverty threshold.

Median Household Income—The income level which divides the income distribution of all of the households in a given area into two equal groups; half of the households having incomes above the median, and half having incomes below the median.

Minority population—A population composed of a minority group and exceeding 50 percent of the population in an area or the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population.

Mitigation—A method or action to reduce or eliminate adverse impacts.

Native Species —A species that occurs naturally in a given area or region without deliberate assistance by humans.

Nutrient—Usually nitrogen or phosphorus. Excessive inputs of a nutrient can stimulate algal growth. Sources of nutrients include runoff from fields and pastures, discharges from septic tanks and feedlots, and emissions from combustion.

Overland Flow— The flow of non-infiltrating precipitation over land surface toward stream channels (once water enters the stream or channel, it is considered runoff).

Ozone—A highly reactive molecule composed of three oxygen atoms. Environmentally, ozone is important in two completely separate contexts—one, as a naturally occurring screen of harmful radiation in the outer atmosphere (i.e., stratospheric ozone), and two, as a component of polluting smog formed from emissions resulting from human activities (i.e., urban smog). In the stratosphere 7 to 10 miles above the Earth, naturally occurring ozone acts to shield the Earth from harmful radiation.

Particulate Matter—Air pollutants, including dust, soot, dirt, smoke, and liquid droplets directly emitted into the air by sources such as factories, power plants, cars, construction activity, fires, and natural windblown dust.

Pastureland—A land use/land cover category of land managed primarily for the production of introduced forage plants for livestock grazing. For the Natural Resource Inventory, this includes land that has a vegetative cover of grasses, legumes, and/or forbs, regardless of whether or not it is being grazed by livestock.

Perquisite—A payment or profit received in addition to a regular wage or salary.

Pesticide—Any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest (i.e., insects, animals, weeds, fungi, or microorganisms). The term pesticide refers to insecticides, herbicides, fungicides, and various other substances used to control pests.

Poverty area—An area in which at least 20 percent of the residents are below the poverty threshold.

Poverty Thresholds—For statistical purposes (e.g., counting the poor population), the U.S. Census Bureau uses a set of annual income levels (poverty thresholds) that represent a Federal Government estimate of the point below which a household of a given size has cash income insufficient to meet minimal food and other basic needs. They were developed in the 1960s, based largely on estimates of the minimal cost of food needs, to measure changes in the poor population. The thresholds differ by household size and are adjusted annually for overall inflation.

Race—Classification which includes White, Black or African American, American Indian or Alaskan Native, Asian, and Native Hawaiian or Other Pacific Islander.

Rangeland—A land use/land cover category of land on which the potential vegetation is composed principally of native grasses, grasslike plants, forbs or shrubs suitable for grazing and browsing, and introduced forage species that are managed like rangeland. Under the Natural Resource Inventory definition, this would include areas where introduced hardy and persistent grasses, such as crested wheatgrass, are planted and such practices as deferred grazing, burning, chaining, and rotational grazing are used, with little or no chemicals or fertilizer being applied.

Riparian Areas—Lands adjacent to rivers and streams that are influenced by flooding. They are considered transition zones between the aquatic and terrestrial ecosystem that are connected by direct land-water interaction.

Runoff—Non-infiltrating precipitation entering a stream or other conveyance channel.

Sediment—Any finely divided organic and/or mineral matter derived from rock or biological sources that have been transported and deposited by water or air.

Sedimentation—The process of depositing sediment from suspension in water.

Threatened Species—A species of plant or animal that is federally designated as likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

Total Maximum Daily Load (TMDL)—A TMDL identifies the amount of a specific pollutant or property of a pollutant, from a point source ("end of the pipe"), a non-point source (from runoff), and natural background sources, including a margin of safety, that may be discharged to a water body and still ensure that the water body attains water quality standards.

Turbidity—A measure of water cloudiness which is caused by sediments or other particles suspended in the water column.

Watershed—The land across and under which water flows on its way to a stream, river, lake, or other water body; the surface drainage area above a specified point on a stream.

Wetlands—Areas that are inundated or saturated with surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil, including swamps, marshes, bogs, and other similar areas.

Woodland—A land cover/land use category that includes wooded pastureland and wooded non-pastureland.

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APPENDIX A
DRAFT CONSERVATION RESERVE ENHANCEMENT PROGRAM AGREEMENT FOR THE ILLINOIS RIVER WATERSHED IN ARKANSAS

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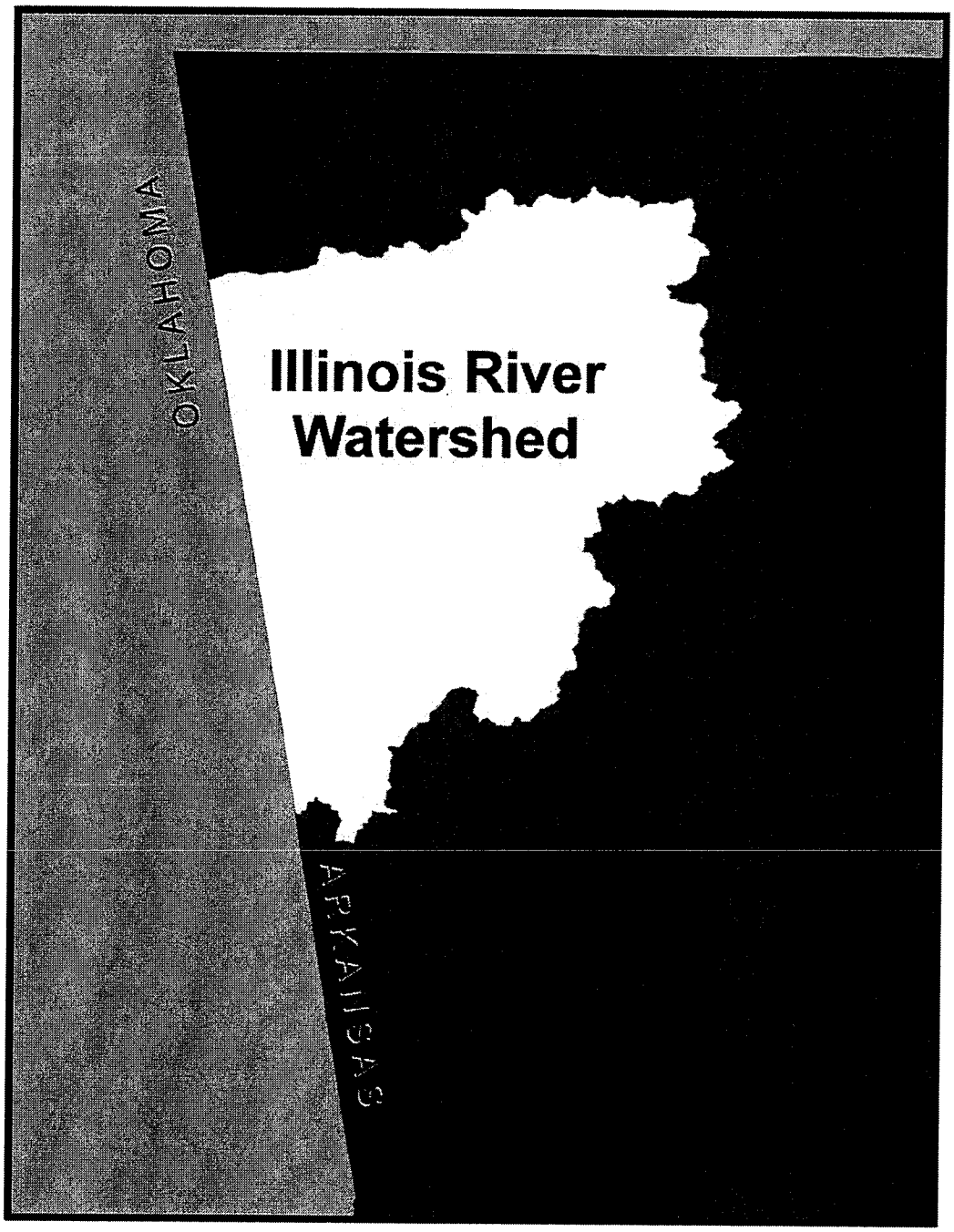
APPENDIX A—CONSERVATION RESERVE ENHANCEMENT PROGRAM ILLINOIS RIVER WATERSHED PROPOSAL STATE OF ARKANSAS

The following pages of this appendix contains the Draft *Conservation Reserve Enhancement Program (CREP) Illinois River CREP Proposal State of Arkansas.* This draft proposal is dated May, 2007.

Conservation Reserve Enhancement Program (CREP)
Illinois River CREP Proposal

State of Arkansas

Benton and Washington Counties



May 2007

Section 1 - Abstract

Arkansas has chosen a high priority watershed in the northwestern portion of the State as the focus of a Conservation Reserve Enhancement Program (CREP) proposal. This watershed was chosen not only because it is a high priority for the State, but also because the water quality problems and sources of contaminants are representative of their regions and of problems that can be significantly addressed with protection of riparian areas.

This project aims to restore stable riparian vegetation and riparian buffers to these systems and to reduce livestock impacts to floodplains. This will result in less overland flow of pathogens (fecal indicator bacteria), sediments, and phosphorus to the streams and will stabilize the stream banks, resulting in less streambank erosion and subsequent stream sedimentation. This, in turn, will result in improved water quality, lower maintenance requirements to the road and highway system, and will help to preserve existing floodplain pasture.

The Illinois River Watershed is part of a major poultry growing and cattle producing area of the State and the nation. Poultry litter has been applied to the nutrient poor, thin, cherty soils of the area and they now grow luxuriant grass and support an important cattle industry. Excessive buildup of phosphorus over the years has polluted the receiving water bodies to the point they are now considered impaired by nutrients. Phosphorus and pathogenic bacteria now impair many of the area streams including the Illinois River.

The proposed CREP will attempt to protect 15,000 acres of riparian area in the Illinois River Watershed which has a total riparian area of approximately 101,098 acres. Practices to be used include CP22 (woody riparian buffers) and CP29 (native warm-season grass buffers) with modifications. Total project cost is estimated to be $30,000,000 ($24,000,000 Federal), 20% of which will be borne by non-federal partners ($6,000,000 = $3 mill. cash + $3 mill. in-kind match).

A major impediment contributing to past failures has been that forested areas along the stream could not be signed up in USDA riparian programs even when they were small components of an otherwise un-forested buffer. Landowners do not want to pay for and maintain a fence at their expense as it crosses through forested areas. In the proposed Arkansas CREP program, monies will be available to pay for fencing and alternative water sources so ranchers fencing livestock out of the stream will still have access to water.

Additionally, strict guidelines concerning the width of riparian buffers sometimes deter otherwise willing landowners if the configuration of the stream is such that they will have trouble maneuvering equipment within the riparian zone or maintaining fences through frequent floods. Another deterrent to participation has been the inflexibility of federal programs concerning management of riparian zones. A state-designed CREP program in conjunction with existing conservation programs (with modifications) will overcome these obstacles.

The State of Arkansas proposes a program that will overcome all of these obstacles and be highly successful. The major components of the Arkansas CREP program will be the same riparian practices that have proven to be successful in Section 319 of the Clean Water Act projects, with some modification. Livestock will be prohibited access to the stream and alternatives will be presented to the producers that provide all the services they were realizing from the stream prior to project implementation.

Section 2 - Existing Conditions

Agricultural producers in the area have already been subjected to significant regulations relating to the use of poultry litter and nutrient management and further water quality degradation will likely result in increased regulation on the industry. Agriculture is a very important industry to the State and as such, it is critical that we take steps to reduce potential impacts from agricultural practices.

All waters within this segment have been designated as suitable for the propagation of fish and wildlife, primary and secondary contact recreation, as well as, public, industrial and agricultural water supplies (APCEC, 2001). The Illinois River Watershed portion of segment 3J contains 152 stream miles in which 125.1 stream miles were monitored at eight permanent monitoring stations. An additional 8.1 stream miles were evaluated for a total of 133.2 stream miles monitored in the Illinois River watershed. Nonpoint source impacts affecting waters in this segment are primarily from pastureland that is also used for application of poultry litter as fertilizer. In addition, many activities contribute to the destabilization of the streambed and excessive bank erosion, including instream gravel removal, conversion of forest to pasture and removal of riparian buffers for construction and other activities. Road construction and maintenance also contribute to siltation problems.

Table 1 summarizes studies that have found impaired reaches of the Illinois River and its tributaries. In addition, nutrient enrichment of the waterbodies in this watershed is a concern, both from point and nonpoint sources. Known problems below wastewater treatment facilities do occur and are easily documented. However, detecting and determining the extent of impacts of the contributions of nutrients from nonpoint sources is difficult. Land use in the watershed is probably the best indicator of where nutrients have the greatest potential to impact water quality. Potentially, confined animal operations in high concentrations within a watershed can result in application of animal manures at nutrient rates greater than can be assimilated, resulting in nutrients being transported to adjacent streams during storm events. Improper management techniques of the nutrients also result in adjacent streams receiving nutrient inputs during storm events.

U.S. Geological Survey (USGS) and the Arkansas Natural Resources Commission (ANRC) cooperated on a project to collect and analyze water quality samples to estimate nutrient loads for nitrogen and phosphorus for 1997-1999 using regression analysis.

Total estimated phosphorus and nitrogen annual loads for calendar year 1997-1999 using regression techniques on 35 samples were similar to estimated loads derived from integration techniques on 1,033 samples. Nitrogen and phosphorus estimates were higher than for comparable undeveloped watersheds (Green et al, 2001).

Arkansas Department of Environmental Quality (ADEQ) surveyed macroinvertebrate and fish communities in the Illinois River in 1995-1996 to assess the impact of municipal wastewater treatment facilities on water quality and aquatic life communities. The study also characterized the effects of point source and nonpoint source pollution on seasonal

water quality (ADEQ, 1997). USGS collected periphyton samples at 51 stream sites in the Ozark Plateau to determine the effect of different land uses.

Table 1: Review of Impaired Reaches, Illinois River Watershed

Reach Name	Seg.	Impairment	Impacts	Cause	Source	Comments
Clear Creek	029	Primary Contact (ADEQ,		Pathogens (ADEQ, 2005)	Urban Runoff (ADEQ, 2005)	
Clear Creek, Mud Creek	029	Aquatic Life (ADEQ, 2005 and 1997)		Siltation and Turbidity	Agriculture & Urban Runoff (ADEQ, 2002)	
Muddy Fork	025		Aquatic Life (ADEQ, 1997)			
Illinois River	022, 023		Aquatic Life (ADEQ, 1997)	Habitat Limitations (ADEQ, 1997)		
Osage Creek	930		Aquatic Life (ADEQ, 1997)			Influenced by cold spring water
Spring Creek	931		Aquatic Life (ADEQ, 1997)			Influenced by cold spring water

Results indicate that periphyton communities are affected by natural and land-use related factors, including nutrients, dissolved organic carbon, alkalinity, canopy shading, suspended sediment, embeddedness, stream morphometry, and velocity (Peterson et al., 2002).

Project Area Description

Arkansas has chosen a high priority watershed in the northwestern portion of the State as the focus of a Conservation Reserve Enhancement Program (CREP) proposal. This watershed was chosen not only because it is a high priority for the State, but also because the water quality problems and sources of contaminants are representative of their regions and of problems that can be significantly addressed with protection of riparian areas.

The Illinois River Watershed lies within the Ozark Mountains Ecoregion. Land is level to highly dissected and is underlain by cherty limestone. Karst features and clear, spring-fed perennial streams are common. These clear or once-clear rivers and lakes are highly valued by the citizens of Arkansas for recreation and water supply.

This project aims to restore stable riparian vegetation and riparian buffers to these systems and to reduce livestock impacts to floodplains. This will result in less overland flow of pathogens (fecal indicator bacteria), sediments, and phosphorus to the streams and will stabilize the stream banks, resulting in less streambank erosion and subsequent stream sedimentation. This, in turn, will result in improved water quality, lower maintenance requirements to the road and highway system, and will help to preserve existing floodplain pasture.

The Illinois River Watershed is part of a major poultry growing and cattle producing area of the State and the nation. Poultry litter has been applied to the nutrient poor, thin, cherty soils of the area and they now grow luxuriant grass and support an important cattle industry. Excessive buildup of phosphorus over the years has polluted the receiving water bodies to the point they are now considered impaired by nutrients. Phosphorus and pathogenic bacteria now impair many of the area streams including the Illinois River.

The Illinois River Watershed contains approximately 1.1 million acres of which approximately 484,514 acres (44%) are in Arkansas and approximately 615,486 acres (56%) are in Oklahoma. The Illinois River Watershed portion of Water Quality Planning Segment 3J (HUC 11110103) occupies the northwestern corner of Arkansas and covers part of Benton County, a large part of Washington County and a small section of Crawford County. This segment includes the Illinois River and its tributaries within Arkansas. The main tributaries in Arkansas are Osage Creek, Flint Creek and Spring Creek.

The proposed CREP will attempt to protect 15,000 acres of riparian area in the Illinois River Watershed which has a total riparian area of approximately 146,462 acres, of which 60,828 acres require vegetative reestablishment. Practices to be used include CP22 (woody riparian buffers) and CP29 (native warm-season grass buffers) with modifications. Total project cost is estimated to be $30,000,000, of which 20% will be borne by non-federal partners ($6,000,000).

Map of the Area

The proposed CREP would focus on the riparian area in the Arkansas portion of the Illinois River Watershed (Figure 1). Riparian protection is critical and one of the most effective strategies to address the water quality issues present in the watershed. The State believes that demonstrating the efficiency of riparian buffers in this high priority watershed is a critical step in reaching our ultimate goal of landowners accepting riparian protection as a standard practice of operation, much like terraces on a sloped field, or septic tanks for a rural residence. Figure 2 depicts the actual project boundary.

Figure 1: Map of the Illinois River Watershed

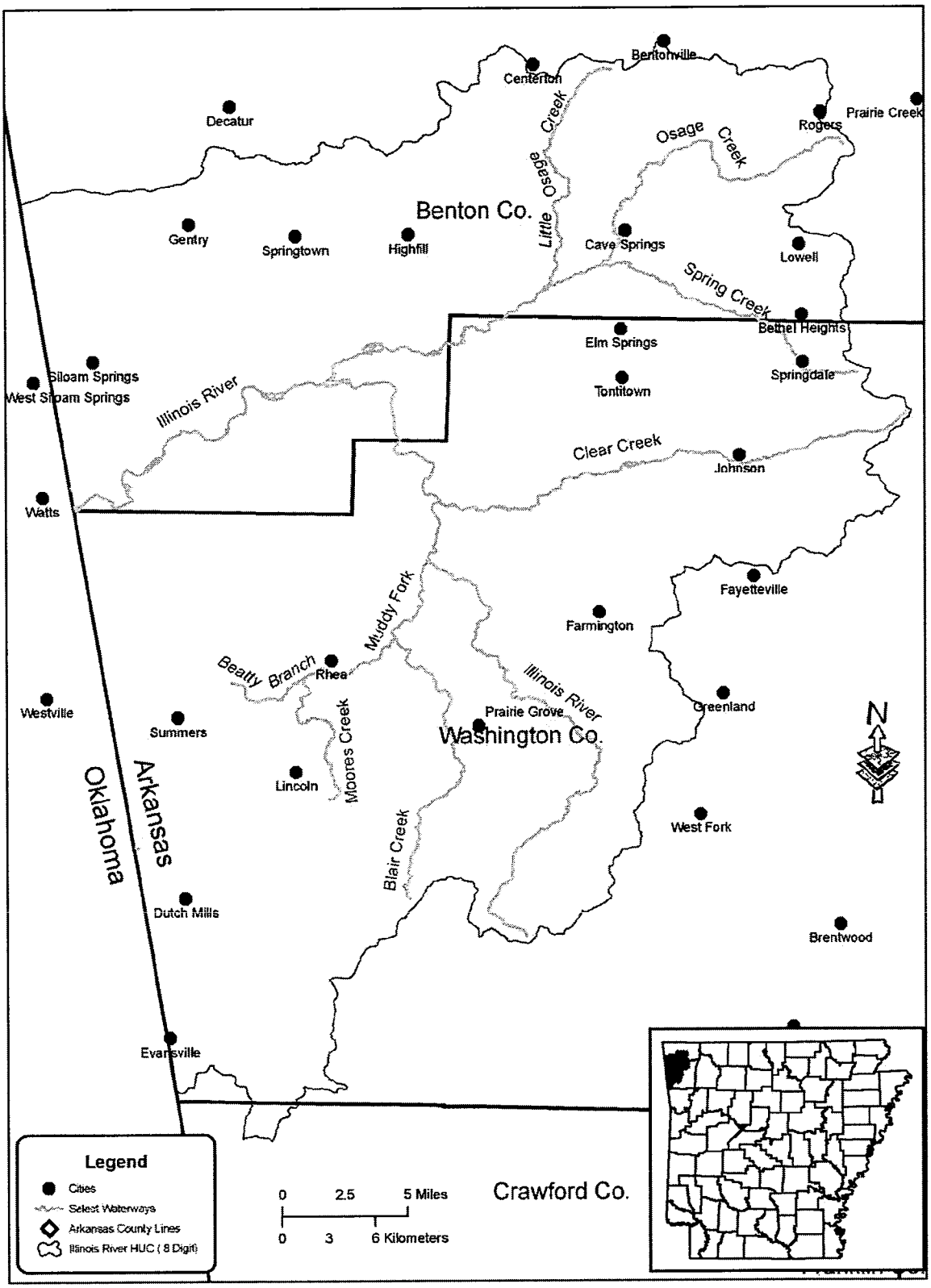
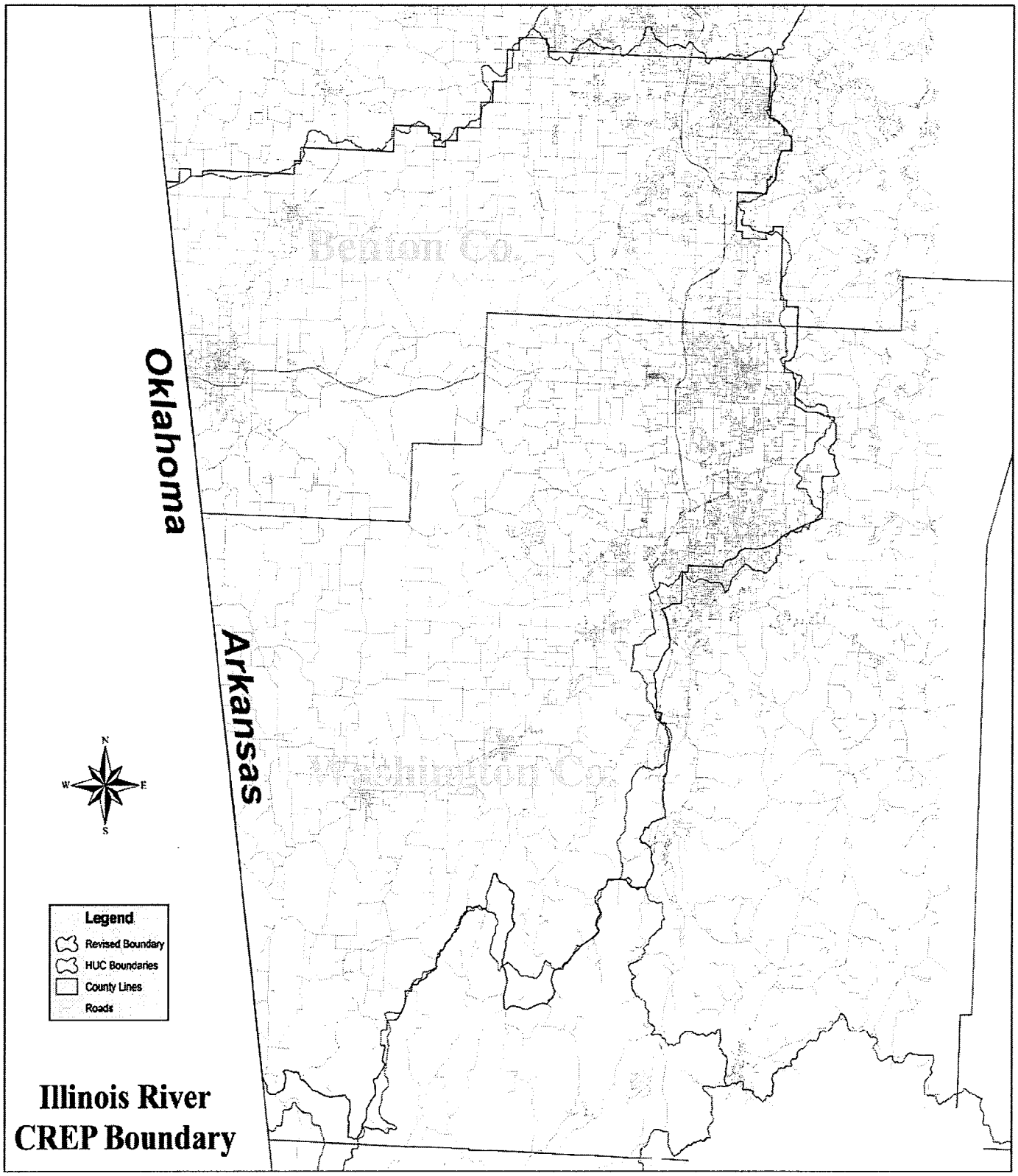


Figure 2: Project Boundary within the Illinois River Watershed



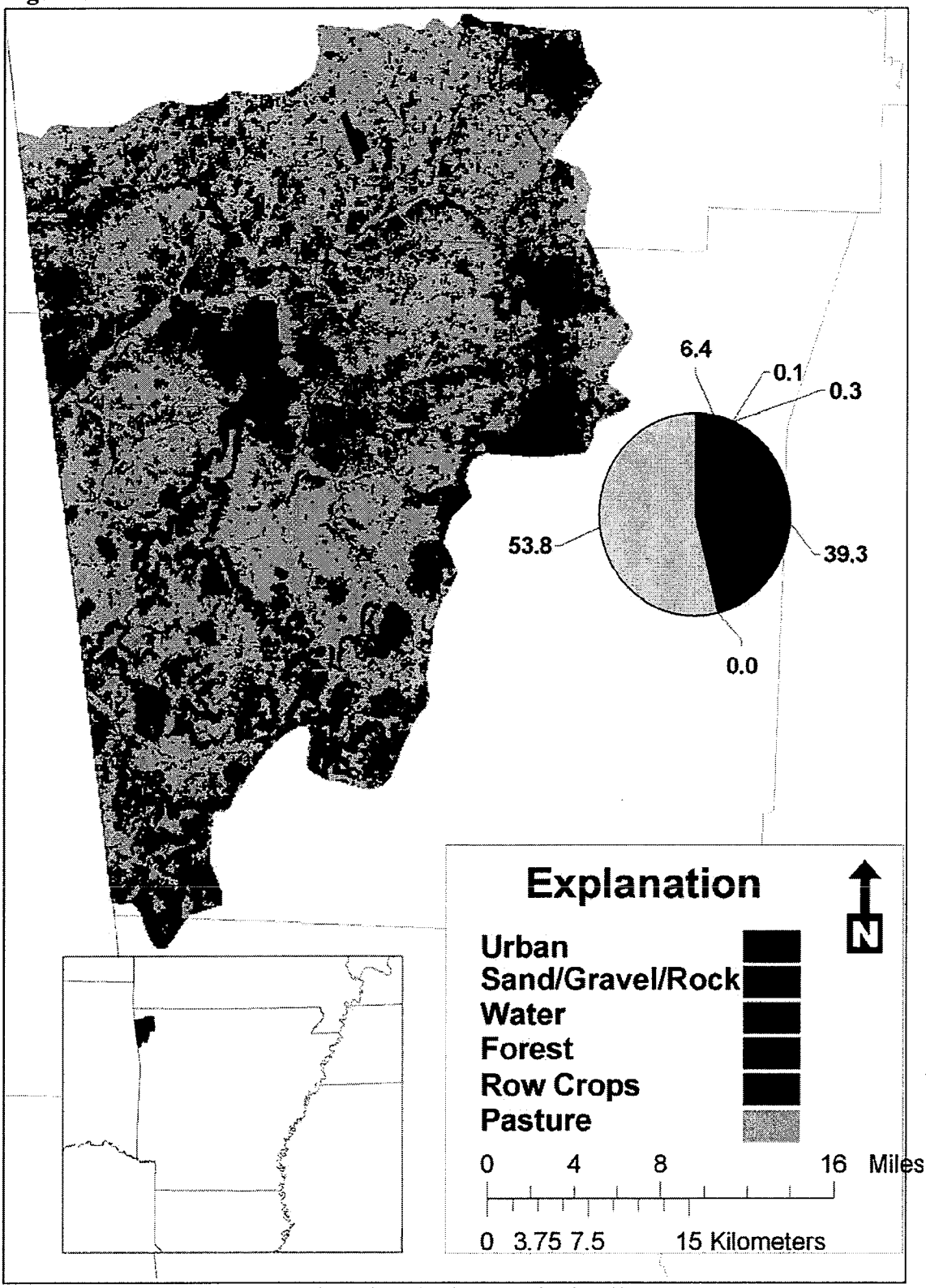
Description of Human Activities and Landuses

The following provide a partial snapshot of land uses in the watershed:

- There are seven drinking water sites in the Arkansas and Oklahoma portions of the watershed (USFS, 1999).
- The population of Washington and Benton counties grew 47% from 1990 to 2000, an increase of more than 100,000 individuals. Washington and Benton counties have continued to grow at a rapid pace from 2000 to 2003. Benton County added 12.1% and Washington County added 7.6% from 2000 to 2003 (University of Arkansas, 2005). As a result, there was significant new construction, including residential, commercial and industrial, roads and other infrastructure. Construction can be found both within municipal boundaries and in rural areas of the watershed where onsite waste disposal is used.
- An estimated 198,000 individuals live in the Arkansas portion of the watershed (Census, 2000).
- 12 municipalities and portions of Washington and Benton counties, as well as, the University of Arkansas are subject to Phase II requirements for a small municipal separate storm sewer system (MS4) National Pollution Discharge Elimination System (NPDES) permit. With leadership from the Northwest Arkansas Regional Planning Commission, all of these entities have joined together to work with the University of Arkansas Cooperative Extension Service to provide education and technical assistance.
- Northwest Arkansas produced more broilers in 2002 than any other area of the state, although production in other areas is gaining (NASS, 2002).
- The entire watershed is designated as a nutrient surplus area subject to new regulations for nutrient planning, nutrient application and certification of nutrient planners.
- 53.8% of the land area in the watershed was pasture in 1999 while 39.3% was forest and 6.4% was urban. Nearly one-quarter of the land area changed uses between 1992 and 1999 (CAST, 1999).
- The USFS estimated there were 62,643 acres of riparian areas in its 1999 assessment of aquatic conditions (USFS, 1999). Of these, nearly half were in agricultural use, primarily pasture.
- The USFS estimated there were 272.0 miles of roads in riparian areas in the Illinois River watershed in 1999, including 113.4 miles of unpaved roads (USFS, 1999).
- The watershed provides habitat for four federally protected species (Ozark Cavefish, Gray Bat, Ozark Big-eared Bat, Bald Eagle).
- Private non-industrial landowners and the national forest own most of the forestland in the watershed.
- Resource extraction (e.g., topsoil removal, gravel mining) primarily supports local construction projects.
- The State of Oklahoma lists the Illinois River watershed on its inventory of impaired water bodies.
- The State of Oklahoma also lists the Illinois River watershed on its scenic rivers list.

Further illustration of landuse distribution in the watershed can be seen in Figure 3.

Figure 3: Distribution of land uses in the Illinois River Watershed



Source: University of Arkansas Department of Biological and Agricultural Engineering, 2005.

Environmental Factors

Average precipitation in the Illinois River Watershed is approximately 45 inches/year. Landforms are mostly moderately to highly dissected portions of the Ozark Plateau with narrow ridge tops separated by steep v-shaped valleys. Lesser amounts of nearly level un-dissected plateau also occur. Karst features occur and springs are common. Most of the smaller streams are perennial and the base flow, consisting largely of spring water, is clear and cool. Larger streams and rivers are also clear but their spring-fed base flow is also supplemented by point sources. These streams and rivers support one of the most diverse assemblages of sensitive fish species in the state.

The northern portion of the Illinois River watershed is on the Springfield Plateau in the Ozark Highland. The southern portion is in the Boston Mountains. The mains soils on the broad uplands of the Springfield Plateau are Captina, Tonti, Peridge, Jay, and Taloka. Clarksville, Nixa, and Noark soils are the main soils in the dissected hilly areas. In the stream valleys, Secesh, Elsah, Britwater, and Captina soils are dominant. These soils are underlain by silty deposits or cherty limestone, or by alluvium derived from these sources. Soil associations in the Boston Mountains are underlain mainly by acid sandstone, siltstone, and shale, or by alluvium derived from these sources. Associations in this area are Allen-Hector-Enders, Enders-Allegheny-Hector, Linker-Apison-Hector, Fayetteville-Hector-Mountainburg, and Savannah-Cleora-Razort.

The area includes the Ozark Plateau and the northern portion of the Boston Mountains. Both are situated in the Ozark Mountains Ecoregion. Most of the natural vegetation is Oak-Hickory and Oak-Hickory-Pine forest. Predominant trees on the uplands include black, white, blackjack, northern red, and post oaks, various elms, sugar maple, and shortleaf pine. Dominant trees on floodplains are sycamore, American and red elm, willows, silver maple, box elder, and river birch.

The clear, cool, spring-fed streams are important biological resources in the state and the larger ones are important as recreational resources. The area has well-developed recreational industries centered around canoeing, rafting, swimming, and camping. Air quality is good and although pollution from the upwind population centers of the state is sometimes evident, the area does not experience any air quality alerts. Federally listed endangered species occur in the area including the Ozark Cavefish (*Amblyopsis rosae*), the Gray Bat (*Myotis grisescens*), the Ozark Big-eared Bat (*Corynorhinus townsendii ingens*), and the Bald Eagle (*Haliaeetus leucocephalus*).

Section 3 - Agricultural-Related Environmental Impacts

Throughout the last several decades, the poultry industry has achieved remarkable success in northwestern Arkansas where many streams and rivers arise, and is a critical part of the State and local economy. Through application of poultry litter to once infertile areas of native pasture or forest, a very successful beef cattle industry has grown alongside the poultry industry. Pastures fertilized with poultry litter are highly productive. Many floodplain forests have been converted to pasture in order to increase forage production, and in the process, many streamside riparian areas have been cleared and converted to pasture as well. Farm demographics for counties within the proposed CREP can be seen in Table 2.

Table 2: Farm Demographics – 2002 Agricultural Census

Item	Benton	Crawford	Washington
Number of Farms	2,376	916	2,800
Average Size of Farms (acres)	132	165	131
Average Farm Production Expenses	$109,775	$47,955	$83,630
Average Farm Net Income	$44,702	$15,650	$29,035
Average Age of Operator	53.1	53.4	54.5
Farming is Primary Occupation for Operator	1,307	471	1,525
Farming is not Primary Occupation for Operator	1,069	445	1,275
Operators Male	2,106	827	2,464
Operators Female	270	89	336
Cattle	113,588	30,295	112,650
Chickens	1,221,497	106,143	2,921,380
Swine	Withheld	133	56,051
Sheep	1,636	680	1,314
Turkey	1,435,810	192,687	1,013,421
Horses	3,570	1,519	4,963
Forage (dry tons)	183,362	67,147	222,687
Wheat (bushels)	--	162,756	5,672
Vegetables (acres)	1,078	1,745	167
Peanuts (lbs.)	--	--	--
Grain Sorghum (bushels)	Withheld	146,250	--
Corn (bushels)	--	316,110	--
Nursery Stock	Withheld	Withheld	Withheld
Pecans	Withheld	Withheld	116
Soybeans (bushels)	11,630	250,506	--
Field & Grass Seed (acres)	1,115	Withheld	137

The Natural Resources Conservation Service (NRCS) and U.S. Forest Service (USFS) completed a Cooperative River Watershed study for the Illinois River and published a Resource Base Report. The study found the Illinois River and many of the lakes on its tributaries were eutrophic from excessive nutrients (USFS and NRCS, 1992).

The Arkansas Water Resources Center (AWRC) prioritized sub-basins in the watershed in 1996 based on total phosphorus, total nitrogen and total suspended solids (Table 3). Each sub-basin was given a low, medium or high prioritization for each of the three factors (AWRC, 1996).

A USFS comparative assessment of 50 watersheds in Arkansas and Oklahoma estimates potential erosion by land use for the Upper White River watershed. The Upper White River watershed is adjacent to and east of the Illinois River basin. Based on 1992 National Resource Inventory (NRI) data, pasture land had the highest potential erosion rate at 72% compared to other lands (including urban) with a 15% potential erosion rate and forestry with a 2% potential erosion rate. Compared to 1982, potential erosion rates increased for pasturelands and decreased for other lands (USFS, 1999).

Table 3: Sub-Basin Priority Ranking (AWRC, Parker et al., 1996)

Basin #	Basin Name	Total Phosphorus	Total Nitrogen	Total Suspended Solids
110	Lake Wedington	Low	Low	Low
120	Ruby	Low	Medium	Medium
130	Goose Creek	Medium	Medium	High
140	Upper Illinois	High	Low	High
220	Hamstring	Low	Medium	Medium
221	Clear Creek	Medium	Medium	Medium
310	Fish	Low	Low	High
320	Robinson	Medium	Medium	Medium
330	Wildcat	Low	High	Low
340	Brush	Medium	High	Medium
351	Lower Osage	Medium	Medium	High
352	Upper Osage	High	High	High
360	Galey	Low	High	Low
371	Lick Branch	Low	Medium	Low
372	Little Osage	High	High	High
380	Spring	High	High	High
391	Cross	Medium	High	Low
392	Puppy	High	High	Medium
410	Muddy Fork	High	High	Medium
420	Blair Creek	Low	Low	Medium
430	Lower Moores	Medium	Medium	Medium
440	Upper Moores	Low	Low	Low
450	Kinion	High	Medium	Medium
510	Francis	Low	Medium	High
520	Gum Springs	Medium	Medium	Medium
530	Chambers	Low	Medium	Low
540	Pedro	Low	Medium	Low
550	Gallatin	Low	Medium	Low
610	Flint	Low	Medium	High
620	Little Flint	Medium	Medium	High
630	Sager	High	Medium	Medium
710	Cincinnati	High	High	Medium
720	Wedington	Medium	Medium	Medium
810	Upper Ballard	High	Low	High
820	Baron Fork	Low	Medium	Medium
830	Evansville	Low	Low	Medium
840	Fly Creek	High	Low	High

	Priority Ranking Group		
Parameter	*Low*	*Medium*	*High*
Total Phosphorus, kg/ha/yr	*0.05-0.065*	*0.065-0.95*	*0.95-1.85*
Total Nitrogen, kg/ha/yr	*0-5*	*5-15*	*15-52*
Total Suspended Solids, kg/ha/yr	*5-75*	*75-170*	*170-324*

USGS has done extensive monitoring and analysis of surface and ground water quality in the Ozark Plateau study area as part of the National Water Quality Assessment Program (NAWQA). Major findings for the Ozark Plateau study area are available at http://ar.water.usgs.gov/nawqa/ozark/findings.html. Some of the major findings include:

- Nutrient concentrations in streams are higher in areas with greater agricultural land use or downstream from wastewater-treatment plants than in forested areas. These higher concentrations may result in increased algal growth in streams.
- Nutrient concentrations in ground water are higher in areas with greater agricultural land use than in forested areas. These higher concentrations seldom exceed drinking-water standards.
- Bacteria concentrations in streams are higher in basins with greater agricultural land use (mostly pasture). Fecal coliform bacteria concentrations occasionally exceed State water-quality standards for whole-body contact recreation.
- Nutrient and bacteria concentrations are affected by hydrologic and geologic factors. Stream discharge and the presence or absence of confining geologic layers are two factors that are important in predicting concentrations.

Under contract with the Arkansas Natural Resources Commission (ANRC), the University of Arkansas Department of Biological and Agricultural Engineering (2005) used the soil and water assessment tool (SWAT) to model priority watersheds for the 2005-2010 NPS Management Program. Figures 4a-4d use SWAT estimates of sediment, run-off, and nutrient loads for phosphorus and nitrogen for some sub-watersheds in the Illinois River watershed to show the relative loading in quintiles for each sub-watershed, which roughly approximates the area of a 14-digit Hydrologic Unit Code area.

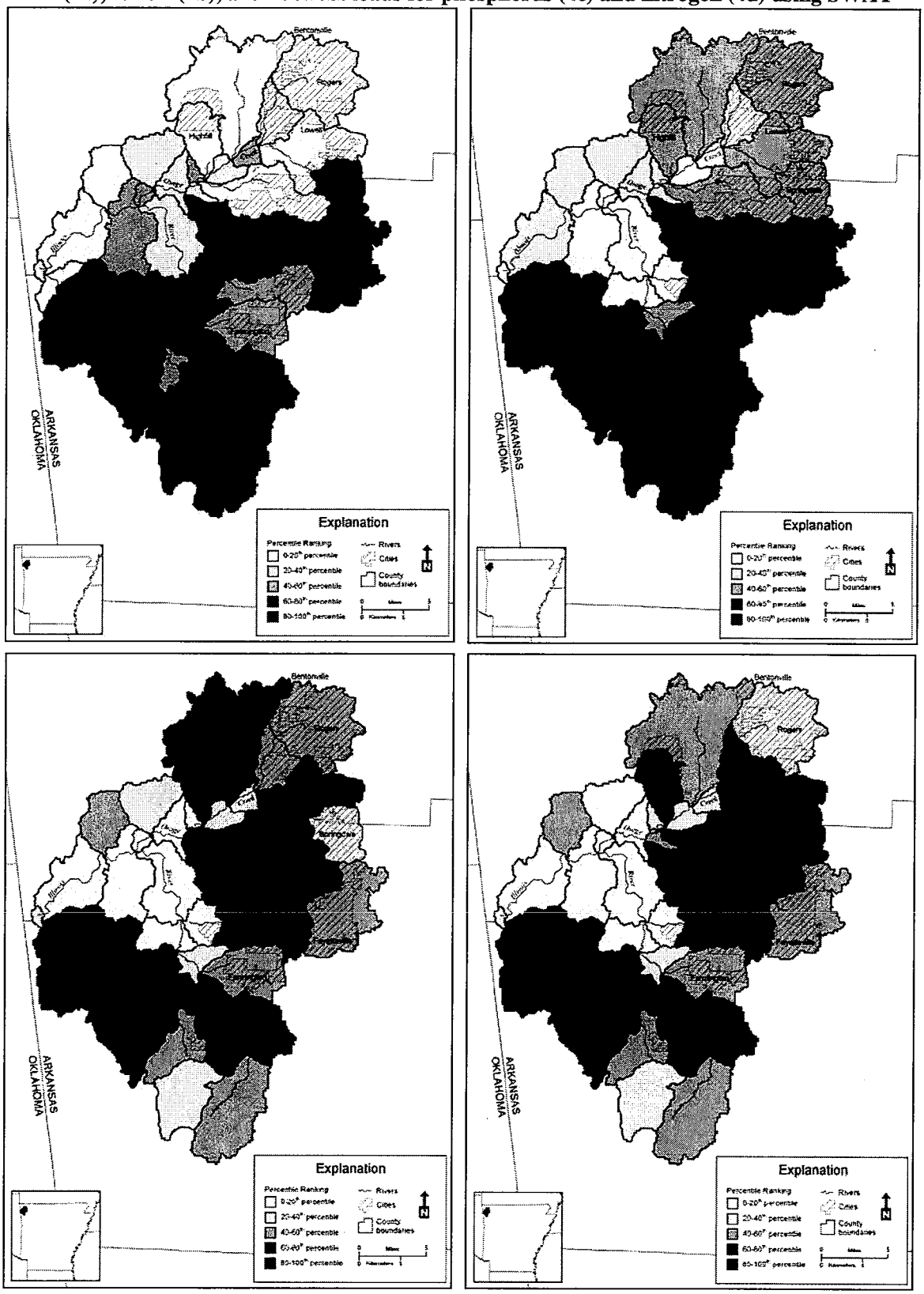
Section 4 - Project Objectives

The implementation of the project will restore 100-foot to 300-foot corridors along streams that will provide habitat for terrestrial species in the project area such as wood ducks, quail, deer, cottontail and swamp rabbits, along with migrant and resident songbirds. Forested riparian buffers will provide new wintering habitat for woodcocks, rabbits, deer and neotropical migrants that are edge species such as warbling vireo, white-eyed vireo, painted bunting and indigo bunting will benefit from the 100'-300' buffers. Forest interior species such as red-eyed vireo will benefit from the 300' buffer, but buffers recommended to benefit interior species are often much wider.

Quail will benefit tremendously from the restored buffers once the hardwood trees are older and have attained mid-story status and the native warm-season grasses have become established. Wood duck populations should improve dramatically, however, because of the long growth requirements of hardwoods, improvements can not be determined over the short-term. Estimated long-term population increases of the wood ducks in the watershed is expected to increase by a minimum of 50% due to quality nesting habitat.

The goal is to increase wildlife populations of the above listed species by an average of 25% over the course of 30 years.

Figures 4a-4d: Relative estimates of contribution of Illinois River sub-watersheds to total estimated sediment (4a), runoff (4b), and nutrient loads for phosphorus (4c) and nitrogen (4d) using SWAT



Source: University of Arkansas Department of Biological and Agricultural Engineering, 2005.

Streamside buffers will help to filter sediments and nutrients from agricultural fields and result in water quality improvements. Typical buffer widths recommended for water quality improvement range from 50' to 100' although some range as low as 25' and up to 900'. It is estimated that water quality will be improved by at least 30%.

Through implementation of this project, sediment loading will be reduced by an estimated 10,000 tons per year.

Section 5 - Project Description

A major impediment contributing to past failures has been that forested areas along the stream could not be signed up in USDA riparian programs even when they were small components of an otherwise un-forested buffer. Landowners do not want to pay for and maintain a fence at their expense as it crosses through forested areas. In the proposed Arkansas CREP program, monies will be available to pay for fencing and alternative water sources so ranchers fencing livestock out of the stream will still have access to water.

Additionally, strict guidelines concerning the width of riparian buffers sometimes deter otherwise willing landowners if the configuration of the stream is such that they will have trouble maneuvering equipment within the riparian zone or maintaining fences through frequent floods. Another deterrent to participation has been the inflexibility of federal programs concerning management of riparian zones. A state-designed CREP program in conjunction with existing conservation programs (with modifications) will overcome these obstacles.

These expanded riparian widths are needed to serve as a functional travel corridor for associated neotropical songbirds along with resident species of birds, mammals, and other wildlife. In agricultural landscapes, maximum numbers of the most area-sensitive species peak in streamside management zones of at least 91 m (300ft) (Keller et al., 1993; Hodges et al., 1995).

The State of Arkansas proposes a program that will overcome all of these obstacles and be highly successful. The major components of the Arkansas CREP program will be the same riparian practices that have proven to be successful in Section 319 of the Clean Water Act projects, with some modification. Livestock will be prohibited access to the stream and alternatives will be presented to the producers that provide all the services they were realizing from the stream prior to project implementation.

Livestock access to streams will be limited through fence construction. In northwestern Arkansas where the terrain is very hilly, pastures often contain many small groves of trees in small narrow ravines and other areas that physically inhibit the operation of equipment necessary to maintain the pasture. Many USDA riparian programs do not subsidize the installation and maintenance of fence through these treed areas and livestock producers have been hesitant to take on this responsibility themselves. The State proposes that the Arkansas CREP program should cost-share fencing through these treed areas at the same rates that federal money cost-shares fencing in pasture. The cost list of accepted practices can be found at the end of the document as Attachment A.

Adjustments from CP22 and CP29 critical to program adoption have been determined to be:

1. Stream bank stabilization will be implemented before riparian vegetation is restored or established and will be allowed at a cost-share rate of 50%.
2. The minimum combined width of zones 1 and 2 will be equal to 30% of the width of the geomorphic floodplain but never less than 50 feet or greater than 100 feet. This is the MINIMUM width for the buffer to function properly – the landowner must install this much. Then he/she can choose to install additional buffer out to a 300-foot program MAXIMUM (CP22). Additional buffer can be enrolled under the infeasible to farm definition (includes infeasible to graze).
3. The infeasible to farm definition will also apply to CP29 (infeasible to graze). Producers may request a waiver to enroll infeasible to farm/graze in excess of 25%.
4. Winter feeding facilities composed of a covered heavy-use area (558 - Roof Runoff Structure) combined with a dry manure storage area (313 - Waste Storage Facility) and a cement water tank will be allowed at a cost-share rate of 50%. These facilities will be constructed out of the geomorphic floodplain. They will be a combination of NRCS practices 561 and 313 with a roof over the heavy use area.
5. Alternative water sources may be developed within 1,500 feet of the edge of zone 3 with County Committee approval to encourage upland pasture use for grazing and flood plain pasture use for haying.
6. Watering facilities will allow up to 1,500 feet of pipeline with County Committee approval.
7. The maximum dollar amount allowed for water development, water facilities and pipeline, $3,000, $2,000, and $2,000 respectively, will be per ½ mile of stream rather than per contract.
8. When two eligible tracts are separated by a wooded area, fence through the treed area will be allowed at a cost-share rate of 50%.

In summary, these practice modifications accomplish the following:

- Providing stable stream crossings for livestock and equipment;
- Stabilize the stream banks, thereby reducing the sediment load into receiving water bodies, decreasing the amount of soil-borne contaminants reaching local water bodies, and increasing the survival of existing or re-established riparian vegetation;
- Fencing will protect the vegetation and stream banks until the project site becomes stable; and
- Construction of winter feeding areas to replace the ravines and hollows that are currently used. The winter feeding areas allow manure to be stockpiled out of the rain (until it can properly be land applied), allow the cattle protection from the wind, protect soil in the heavy use areas, and provide an alternative water source for livestock.

Project Size

The Illinois River Watershed contains approximately 1.1 million acres of which approximately 484,514 acres (44%) are in Arkansas and approximately 615,486 acres (56%) are in Oklahoma. The proposed CREP will attempt to protect 15,000 acres of riparian area in the Illinois River Watershed of a total riparian area of approximately 146,462 acres. The targeted area is land lying adjacent to perennial and intermittent streams that is currently in cropland or pasture.

Likelihood Project Objectives will be Met

By providing a significant state incentive coupled with the federal cost-sharing and 15-year CRP rental payments, landowners in the watershed will find the proposal attractive enough to enter the program. It is expected that the level of participation will be limited only by project funding. At least 25% of the eligible landowners, representing 25% of the eligible land area, will participate.

Length of Time for Project Implementation

It is anticipated that all contracts will be signed within 3 years of the project opening date. The contracts will have a 15-year lifespan. On all approved CREP contracts, landowners will be given the opportunity to enroll CREP lands in perpetual easements.

All landowners enrolling eligible land into the Illinois River CREP will be given the opportunity to place a perpetual conservation easement on enrolled acres through the easement portion of this proposed CREP. Perpetual easements are not a required component of the Illinois River CREP. This portion of the CREP will allow landowners to obtain permanent easements soon after the practice is completed and verified as successfully established.

The State of Arkansas will be designated as the "Easement Manager" and be the primary holder of the permanent conservation easements. Arkansas natural resource agencies may assist in easement boundary marking and monitoring easements during and beyond the initial 15-year CREP contract period.

Interagency Coordination Method

The Arkansas CREP proposal is being developed by the natural resource agencies of Arkansas and the state offices of NRCS and FSA. The Arkansas Natural Resources Commission is the state Conservation District agency. The Governor's office has been represented. EPA Region 6 staff is supportive of the project. Their commitment to protecting and restoring water quality in the project area has been demonstrated by continued Section 319 funding in this watershed. Meetings have been held with State and Federal and local natural resource agencies operating in Arkansas (U.S. Geological Survey, Arkansas Natural Resources Commission, Arkansas Department of Environmental Quality, Farm Service Agency, Winrock International, Arkansas Game and Fish Commission, Natural Resources Conservation Service, Arkansas Natural Heritage Commission, University of Arkansas Cooperative Extension Service, Arkansas Forestry Commission).

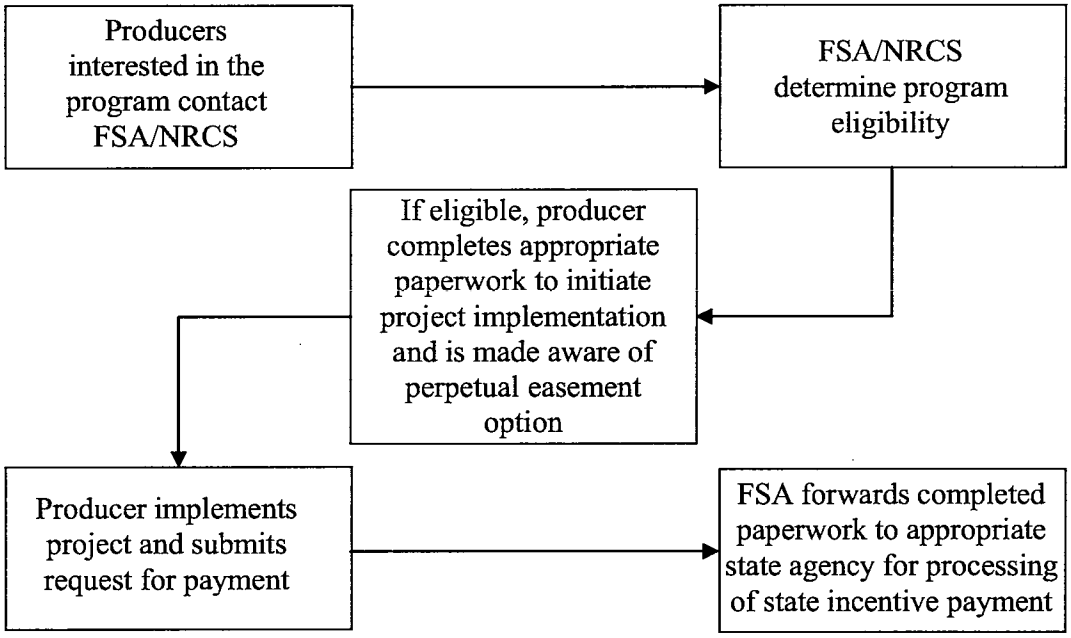
The following agencies and organizations will serve on a committee to develop on-going outreach and general public education of the program: Arkansas Natural Heritage Commission, Arkansas Game and Fish Commission, University of Arkansas Cooperative Extension Service, Arkansas Natural Resources Commission, Arkansas Forestry Commission, USDA Natural Resources Conservation Service, Arkansas Department of Environmental Quality, and Arkansas Stream Teams

Eligible Land

Landowners with pasture and/or cropland adjacent to streams, rivers, or lakes in the selected watersheds will be eligible for the program. The land in question must have been owned or operated by the applicant for the previous twelve months. Cropland must have been planted to a crop four of the previous six years and be physically and legally capable of being cropped. Marginal pastureland may also be enrolled provided it is suitable for use as a riparian buffer planted to trees or as wildlife habitat buffer. Lands that have an existing CRP contract or an approved offer with a contract pending are not eligible for CREP until the previous contract expires.

Landowners interested in the program will receive a site visit from an NRCS plan writer, who will update the existing conservation plan, or draft a new one to address the objectives of the program. If the landowner agrees to implement these recommended practices and provide the required match, their application will be accepted, along with other applications received during the sign-up period.

Application Process



Section 6 - Cost Analysis

The proposed Arkansas CREP program is expected to cost approximately thirty million dollars of Federal, State, and local landowner monies. This program has been developed using lessons learned from past implementation of riparian buffer programs in these areas of the State. Certain modifications have been made to standard BMPs to make them more amenable to local landowners while retaining their efficiency at improving water quality. Certain types of land that would not regularly qualify for inclusion in a CRP program could be eligible for this CREP program. The State of Arkansas believes inclusion of these lands are critical to the success of the program in these areas. The State will provide personnel to provide technical assistance and promotion of the program, monitoring to assess water quality improvements associated with the program, and reporting to summarize project results and progress.

Total Estimated Project Costs

Watershed	Targeted Acres	Cost of Installation & Maintenance	CREP $'s	State Match	State $'s	State Total	Project Total
Illinois River	15,000	$24 mill.	$24 mill.	$3 mill.	$3 mill.	$6 mill.	$30 mill.

Estimated Costs of First Year and Years 2 through 15

County	Pasture Rental Rate per Acre	Additional Pasture Rental Rate	SIP Pymt. per Acre	Maint. Pymt. of $9/Acre	Total/Acre First Year	Pymt./Ac./Yr. for Years 2-15	Pymt./Ac. for 15-Year Contract
Benton	$38	$38	$100	$9	$185	$85	$1,375
Washington	$34	$34	$100	$9	$177	$77	$1,255
Crawford	$32	$32	$100	$9	$173	$73	$1,195

State contributions to the program will be:

1. The State of Arkansas will provide water quality monitoring for the life of the program to document project effectiveness. This will include, where necessary, installation of stream flow gages and automatic samplers programmed to collect flow-weighted chemical loading data. It will also include the staff to operate the equipment, as well as, the associated laboratory costs. Biological data on the fish and macroinvertebrate communities and aquatic habitat conditions will also be collected.
2. The State of Arkansas will provide technical assistance where applicable during the implementation and monitoring phase of the project.
3. The State of Arkansas will make a one-time lump sum payment of $200 per acre to all landowners who participate in the program.
4. The State of Arkansas will allow participants to utilize the Wetlands and Riparian Zones Tax Credit Program to offset eligible out-of-pocket expenses related to their CREP project.

State of Arkansas

The State of Arkansas is prepared to contribute $3,000,000 of in-kind services to the proposed project and $3,000,000 of the required cash match, as outlined by federal guidelines necessary for implementation of the proposed project.

The Illinois River CREP will enable cooperators to tailor the program to meet the needs of both the State and the local watershed stakeholders and allow it to be a very successful riparian buffer program.

Justification for Incentive Payments

Successful Section 319 programs have conclusively shown that a program of this nature can reduce phosphorus loading in both a statistically and environmentally significant manner. Without this assistance, agriculture and the poultry industry will not be able to both protect the environment and keep the rural economy vibrant and growing.

Because these waters are currently listed as not attaining water quality standards, the state will have little choice other than to burden agriculture and related industry with additional regulations if water quality does not begin to improve. Given the current condition of the agricultural industries, they will not survive significant additional costs such as these.

Three Year Average Crop Acreage and Yield- Source – 2002 Ag Census

	Benton		Crawford		Washington	
Crop	acres	yield	acres	yield	acres	yield
Corn-grain	0	0	2,823	316,110	0	0
Cotton-upland	0	0	0	0	0	0
Hay-alfalfa	639	1,796	372	withheld	787	1,871
Hay-other	withheld	withheld	withheld	withheld	withheld	withheld
Peanuts	0	0	0	0	0	0
Sorghum-grain	withheld	withheld	2,047	146,250	0	0
Soybeans	482	11,630	9,056	250,506	0	0
Wheat-all	1,213	43,928	4,230	162,756	173	5,672

Section 7 - Monitoring Program

Water quality stations are established at various locations in the watershed. Samples will continue to be collected monthly and transported to the Arkansas Department of Environmental Quality laboratory. Analyses include ammonia, nitrate/nitrite, total Kjeldahl nitrogen, chloride, sulfate, bromide, fluoride, total hardness, total organic carbon, biochemical oxygen demand, dissolved oxygen, pH, turbidity, total suspended solids, total dissolved solids, ortho-phosphorus and total phosphorus. ICP metals analyses are performed every other month. Other parameters may be added as information, science and public policy dictate. This type of monitoring has been shown to be extremely effective at detecting changes in water quality and should allow us to detect effects of the program.

All monitoring will be carried out by staff of the Arkansas Department of Environmental Quality, the Arkansas Forestry Commission, the Arkansas Game and Fish Commission, and the Arkansas Natural Resources Commission. Data will be compiled and analyzed by Game and Fish Commission staff as well. AFGC staff will be responsible for preparing and submitting annual monitoring reports.

Because State agencies have successfully carried out smaller but similar projects in all of the target areas, we anticipate that objectives will be met. Should the data at any time indicate otherwise, additional modeling and monitoring will be performed to locate the pollutant contributing sub-watersheds and land use practices. If any are identified, they will be corrected using a combination of state, landowner and EPA Clean Water Act Section 319 money.

Section 8 - Public Outreach and Support

Various state and federal natural resource agencies administer conservation programs similar to the one proposed. These programs have been extremely successful, both in terms of sign-up and in the environmental benefits gained. As time progresses, and word spreads among local producers, we find that new money is obligated as soon as it becomes available. Currently, there are large backlogs of landowners waiting for cost share assistance to become available.

A public meeting was held at the Ozarks Electric Co-Op Corporation in Fayetteville, Arkansas on February 15, 2007 to give producers the opportunity to review and comment on the Illinois River CREP Proposal. Approximately 60-70 individuals representing various interest groups were present. Overall response to the proposal was favorable. The primary concern voiced at the meeting was that the proposed project be as flexible as possible in order to accommodate as many producers as possible. The proposal was developed with flexibility as a primary guiding principle.

Riparian area and buffer protection and establishment are two of the most important practices needed to improve water quality. While some of these areas are currently protected through contracts written under the Section 319 program, these contracts will soon expire. Even more riparian areas are unprotected or currently in pasture with eroding streambanks because of lack of funds to meet the demand and because of lack of interest in short-term contracts.

The State Cooperative Extension Service has also been a long-time promoter of the benefits of riparian buffer systems. University of Arkansas Division of Agriculture contribution to the Illinois River Basin CREP will be:

- Contribute $400,000 in development funding toward applied demonstration and research activities. These funds would be in direct support of evaluating and promoting alternative management practices and the educational effort necessary to landowner participation in the CREP project.
- Design and deliver a credible and effective landowner education program with respect to the value and application of the Illinois River Basin CREP program to

individual farm situations. Utilize the County Extension Agent delivery system of Washington and Benton Counties and associated citizen networks to strengthen the public and landowner understanding of the CREP project and its value to both landowners and the environmental health of the region.

- Work cooperatively with partnering agencies and organizations in the watershed to develop a network of supporting technical and planning assistance providers.
- Develop working demonstration and educational outreach sites through the resources of the University of Arkansas Division of Agriculture and the Dale Bumpers College of Food and Life Sciences (included is significant working farm acreage within the Illinois River watershed).
- Assist in assessing the effectiveness of individual and complementary Best Management Practices and evaluating the overall effectiveness of the water quality improvements generated by the CREP.
- Utilize the full complement of diagnostic tools, laboratories and research based knowledge available through the University of Arkansas System in support of the CREP management plan and its successful implementation.

It is important to recognize the different circumstance existing in the Illinois River Watershed and that found in all other CREP project efforts in Arkansas to date. Landowners in the Illinois River Watershed have limited association with cost share programs, long term agreements, easements and other associated conservation programs found in the current USDA Farm Program. They are also in a rapidly developing area with increasing land values. This competition for land use and reluctance on the part of landowners to make long term commitment (potentially limiting future development opportunity) necessitates a CREP project supported by a sophisticated educational program and accompanying economic evaluation of alternatives, developmental limitations and environmental liabilities and benefits. The University of Arkansas Division of Agriculture is uniquely qualified and capable of providing this needed educational support and to conduct synergistic research within the Illinois River Watershed and across the state at the Arkansas Agricultural Research and Extension Centers. The system provides the opportunity to conduct a series of applied research and education demonstrations. Some of the potential opportunities are listed below:

1. Hydro-Geomorphic Restoration of Flowing Waters: Improving Ecological Services
2. Increasing water storage for flood control
3. Restoring sediment transport integrity
4. Increasing stream nutrient retention and biotransformation
5. Increasing aquatic health and aesthetic appearance
6. Animal Behavior Response to Alternative Water Supply and Limited Stream Access
7. Improving Aquatic Health and Water Quality in Adjacent Streams
8. Tracking cattle movement and behavior using GPS
9. Using off-site solar water systems to utilize natural water systems and enhance grazing distribution
10. Evaluating biotic integrity, fecal bacteria and in-channel chemistry

11. Riparian Buffer Zones (Three Zone System) to Improve Water Quality: Retention Efficiency from the Edge-of-Fields to the Aquatic System
12. Monitoring sediment, nutrient and bacteria transport at various stages and with different grazing management strategies in the grass buffer and riparian zone
13. Evaluating stream nutrient retention using whole-reach experimentation
14. Evaluating gentrification potential at various stages through the three zones
15. Simulating (modeling) the effectiveness of riparian buffers at the watershed scale
16. Increasing wildlife habitat and aesthetic value
17. Wetland Use and Restoration: Improved Downstream Water Quality
18. Increasing water storage during episodic storm events
19. Reducing sediment, nutrient and bacteria transport
20. Evaluating gentrification potential to mitigate nitrate loss
21. Chemical remediation to increase the longevity of phosphorus removal
22. Diet, Forage and Grazing Management: Improved Downstream Water Quality
23. Reducing sediment, nutrient and bacteria transport
24. Identifying alternative forages and their management needs
25. Managing cattle numbers to maximize infiltration
26. Monitoring edge-of-field losses and BMP effectiveness
27. Reducing feed supplements in cattle and its effect on manure
28. Evaluating the use of byproduct feeds such as distiller's grains on manure

Actual applicable research and demonstration activities conducted by the University of Arkansas Division of Agriculture are dependent upon the final design of the CREP.

Section 9 - Development of Procedure

The procedures in Attachment B have been developed jointly between the Farm Service Agency (FSA) and the Natural Resources Conservation Service (NRCS) in the Arkansas state office to lay out the various steps for implementing the Continuous Conservation Reserve Program (CCRP) more clearly (Steps 1-21). These procedures are based on basic guidance found in Paragraph 111C of the 2-CRP Manual and other parts as appropriate

Section 10 - Training of Staff

FSA and NRCS will train federal staff as appropriate for this project.

Section 11 - Communication Plan

An Outreach and Education Communication Plan Workgroup will be formed in the targeted watershed. The workgroup will consist of at least one District Board member from the District(s) in which the watershed lies, AGFC Fisheries/Stream Team Coordinator, AFC Forester, Conservation District staff, County Extension Agent from each county, and others as necessary to assist. With advice from Conservation District staff, farmer/ranchers seen as community leaders representing all important facets of local agriculture will also be requested to assist. Additional members may represent local recreational interests and officials of towns who use the water for a drinking water supply or any entities concerned with water quality.

The communication plan will be developed with the goal of providing local communities with the communications, education, and marketing support to ensure success of the CREP program throughout the selected areas. The following objectives will be important in meeting that goal:

- Obtain 100% awareness of the CREP program among landowners with degraded or threatened riparian areas in the selected watersheds,
- Provide 100% of the aforementioned landowners with information about economic and environmental benefits of riparian buffer protection,
- Create a positive response to CREP program in the community affected by the CREP (including not only agriculture producers eligible for the program, but water users of downstream reservoirs, and state tax payers in general),
- Develop or otherwise provide resources and materials to help promote and enlist cooperators in the CREP program,
- Build and maintain a coalition of Federal, State, and most importantly, local stakeholders to promote the program,
- Identify methods to maximize riparian protection beyond the life of, boundaries assigned to, and resources available through the proposed CREP program, and
- Additional objectives determined by the local Watershed Group, once it has been assembled.

The communication plan will recognize the following motivators to enrollment, and possibly identify additional motivators, based on personal knowledge of the watershed and community:

- To conserve natural resources including soil, forests, and wildlife,
- To improve the land and its value,
- To improve water quality,
- To improve farm productivity, either through improved profits, or decreased work maintaining marginal lands,
- To reduce the likelihood of additional lawsuits and/or future regulations,
- Increased incentives for installation and maintenance of conservation practices, and
- To work cooperatively as a watershed unit, including Oklahoma members.

The communications plan will recognize the following barriers to enrollment (and possibly additional ones based on more intimate knowledge of the local community and its needs) and seek ways to minimize the effect of these barriers:

- Investment of time and money,
- Ever increasing costs of implementation and maintenance,
- Hesitation to commit to a long-term program that may restrict ability to use or sell your land,
- Increasing pressure to develop land in northwest Arkansas, northeast Oklahoma, and
- Government guidelines.

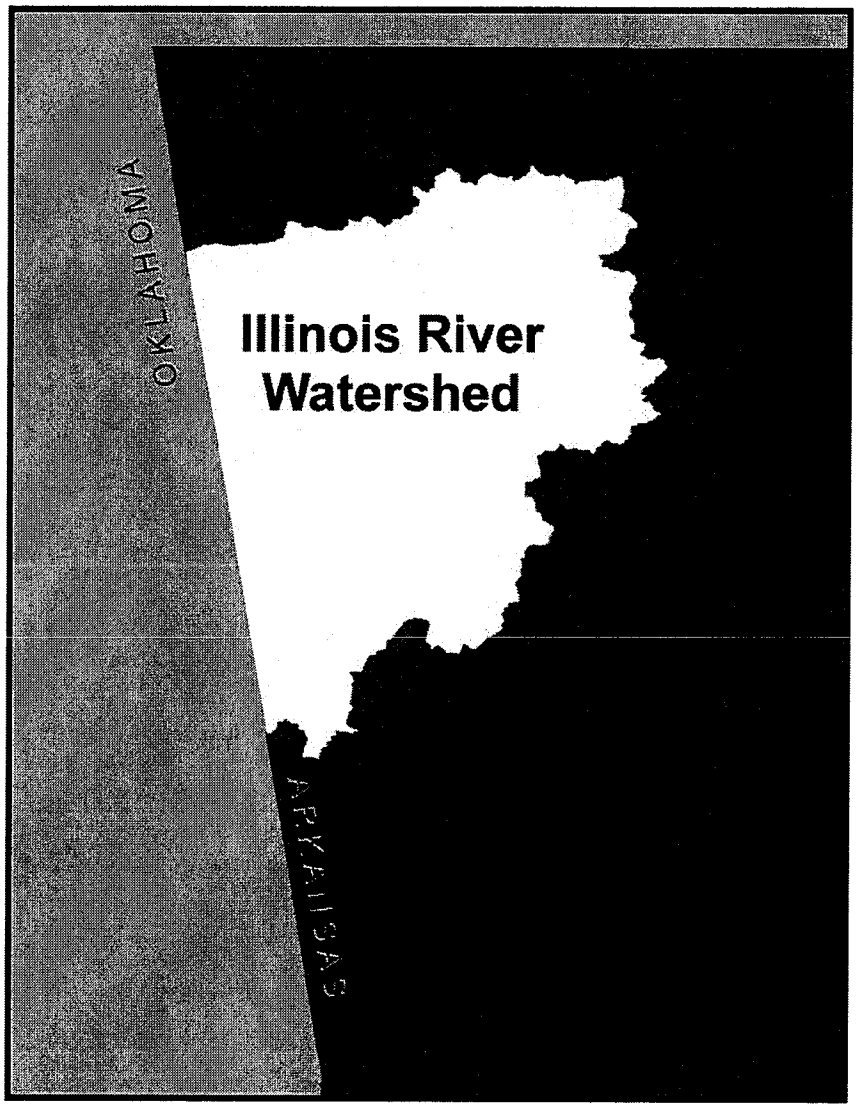
The communications plan will describe the development and/or use of the following tools and materials:

- Door-to-door presentations and phone calls
- Brochures,
- Fact Sheets,
- Riparian Management Handbook,
- Press releases, newspaper articles, radio spots,
- Signs,
- Events, activities, tours, presentations and displays at public meetings,
- Mail outs,
- Additional tools as determined by the Watershed Advisory Group, and
- Links from agency, NGO, and local web sites to the mentioned information in electronic form.

Attachment A

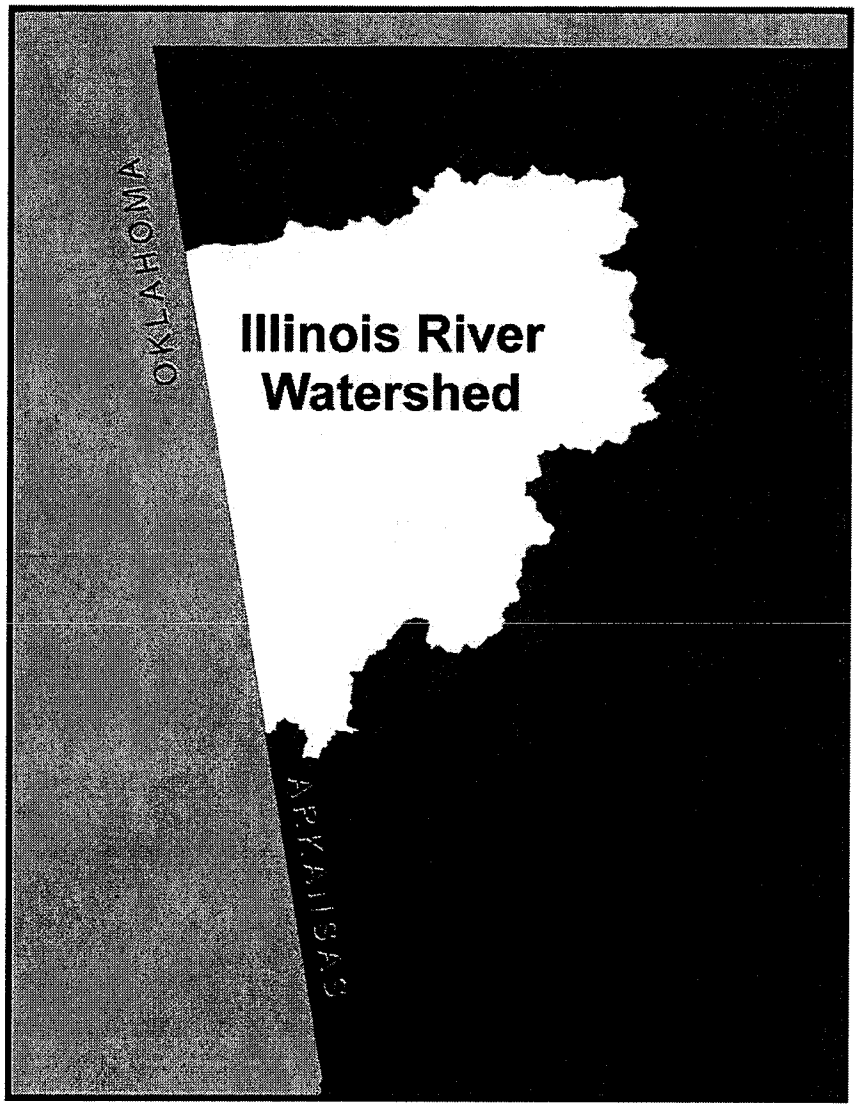
2006 Program Cost List

(Not included in draft)



Attachment B

Illinois River CREP Program Procedure



Step	Implementers	Responsibilities
1	FSA, NRCS	FSA explains the program and the practices to the landowner. NRCS may assist with an explanation of technical aspects of practices as requested by applicants (including State Tax Credit options).
2	Producer	The producer is responsible for indicating the area offered for the program and estimated acres, identifying the application area as near as can be determined on aerial photography.
3	FSA	FSA determines: producer eligibility (See Paragraph 82); basic land and practice eligibility criteria (See Paragraph 112); and program policy and practice requirements (See Exhibit 9). This eligibility determination is not a determination of final approved acres. If all these are not met, then FSA does not forward the CRP-2C to NRCS.
4	FSA	FSA fills in all items on the CRP-2C except items 2, 3B, 6, 14A-F on cropland, and 17A-F on cropland (See Paragraph 138C).
5	FSA	FSA subdivides fields where partial field practices are offered according to existing policy (see Paragraph 138C, CRP-2C Item 22). Assigned field numbers will be indicated on a map and the CRP-2C.
6	FSA, NRCS	FSA forwards completed CRP-2C to NRCS along with an aerial photograph (arc-view maps are preferable where capability exists) delineating the acres initially determined to be eligible. Only areas eligible for the continuous CRP practices should be included (See Paragraph 138C Item 24B). The area marked should identify the partial field area being offered as specifically as possible so that NRCS employees will know which parts of a field are to be evaluated. Those practices that have a limited width that cannot be exceeded without documentation by NRCS should indicate only the initial width (i.e. 180 ft. for CP-22). A producer signature on CRP-2C is not authorized prior to forwarding the form to NRCS at this point since final eligibility, needs, location, and acreage have not yet been established. Note: Both **FSA and NRCS** should notify the producer that NRCS may identify additional eligible area if the producer desires, and the additional area is needed to address resource concerns.
7	NRCS	NRCS will consult with the producer to establish the final width where appropriated and notify FSA of any changes in width by providing a written memo. Where no changes are to be made, an NRCS employee may either initial next to each eligible acreage in item 24B or provide notice in a written memo that acres were reviewed and no changes are indicated.

8	NRCS, TSP (Technical Service Provider)	NRCS or TSP (Arkansas Game and Fish Commission or Arkansas Forestry Commission) makes a mandatory site visit to determine whether: the offered land is suitable for the practice offered; the practice offered is needed and feasible to solve the resource concern (See Exhibit 9); and whether the existing cover is functioning as the practice offered.
9	NRCS	When evaluating a site for CP-22 or CP-29, NRCS may determine an additional width is needed for water quality purposes. NRCS employees may also observe reasons why the offered acreage may not be eligible for the practice or the eligible acres need to be adjusted. The changes will be clearly communicated to FSA by written memo, or by making notations of additional widths on the map provided by FSA. Any GPS coordinates documented by NRCS for revised practice boundaries may be provided to FSA electronically by downloading directly to their computer. In order to provide accurate location information, top-of-bank will be identified for these practices, using either GPS coordinates or marking with flags.
10	NRCS	NRCS may provide information to FSA to aid in conducting a measurement service on all partial field practices. This can be accomplished by downloading GPS coordinates directly to the FSA computer to allow an in-office measurement or by flagging field boundaries using materials that will remain visible above existing vegetation so that FSA can conduct a field measurement service. A complete polygon must be provided based either on top-of-bank where other vegetation is not present, or edge of existing vegetation where it is present.
11	NRCS	Once NRCS completes their responsibilities described above, including filling in items 14A-D and 17 A-D for cropland on the CRP-2C, the form and any supporting documentation is returned to FSA.
12	FSA	FSA finalizes the measurement service and completes the remaining items on the CRP-2C and the CRP-1 with the landowner, notifies the landowner of acceptance, and explains the process for finalizing the program contract, including the need to get a conservation plan through NRCS. Final eligible acres will be indicated if necessary by correcting item 24 on the CRP-2C.
13	FSA	FSA returns a copy of the signed CRP-2C and the CRP-1 to NRCS to begin the planning process.

14	NRCS	NRCS meets with the landowner and writes the conservation plan and/or forwards a request to the appropriate TSP, if applicable, for a practice plan which will be integrated into the conservation plan (See National Planning Procedures Handbook, FOTG Sections III – V, and GM 180 Part 409). The plan will include NRCS-CPA-52 (This is not the AR-NRCS-CPA-52 used for other conservation planning) developed as a part of the planning process, and all other appropriate forms.
15	TSP, NRCS	If a TSP is used for plan development, the TSP will return the plan to NRCS. In all cases where the AGFC or AFC is writing a portion of the plan, NRCS is responsible for incorporating that information into the Conservation Plan.
16	NRCS, Conservation District	NRCS and Conservation District will approve the final conservation plan and forward the completed conservation plan with appropriate signatures to FSA
17	County Committee	The County Committee approves the final plan and the CRP-1.
18	FSA	FSA issues AD-862 to NRCS followed by an AD-245 to landowner.
19	NRCS	NRCS will, as part of its technical responsibility, assist the landowner in laying out the boundaries of practices or assist in determining the location for placement of "T" posts for CP-22 and CP-29 using the same GPS coordinates provided to FSA or as otherwise marked in the field. This will be done at a time convenient to both parties prior to practice installation. Since applicants can start implementation of a practice at their own risk prior to approval of the CRP-1, this activity could possibly be accomplished at the same time step 9 in Processing the Offer is carried out provided existing crops or other situations do not prevent it. Notice of the right to install 'T' posts prior to contract approval will be provided to the applicant by FSA.
20	NRCS, TSP	NRCS or TSP assists the landowner with practice installation, documents the conservation plan, and completes the AD-862 for FSA.
21	FSA	FSA processes the payment request from the landowner.
22	FSA	FSA provides copies of CRP-1, CRP-2, AD-862, AD-245, CRPO, and appropriate State paperwork (State Incentive Payment Application, Vendor Profile, W-9, and optional Direct Deposit Authorization form) to producer.

23	Producer	Receives project documentation from FSA and sends copies of: CRP-1, CRP-2, AD-862, AD-245, CRPO, bills, State incentive paperwork (State Incentive Payment Application, Vendor Profile, W-9, optional Direct Deposit Authorization form), and Tax Credit Application (if applicable) to ANRC for processing.
24	ANRC	Enters final contract information into State CREP database and processes State Tax Credit paperwork if applicable. Forwards appropriate paperwork to Department of Finance and Administration (DF&A) so State Incentive Payment and State Tax Credit can be issued to producer(s).
25	DF&A	Processes paperwork and makes State Incentive Payment to producer(s).
26	NRCS	County Office makes spot checks according to 2-CRP for CRP-1compliance, and notifies FSA of contract violations.
27	FSA	Issues annual rental payments when authorized and after final status review. Informs ANRC of contract violations, and other significant changes to CREP contracts.
28	ANRC	By January 1st of each year, beginning in 2008, ANRC provides a report to the USDA FSA summarizing the status of enrollments under CREP and progress on fulfilling the other commitments of this program.

APPENDIX B
RELEVANT LAWS AND REGULATIONS

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APPENDIX B—RELEVANT LAWS AND REGULATIONS

This following is a non-exclusive and brief discussion of the relevant laws and regulations that form the basis of the programmatic environmental analysis for the proposed Conservation Reserve Enhancement Program agreement for the Illinois River Watershed in Arkansas.

Clean Air Act

The *Clean Air Act* (42 *United States Code* [USC] parts 7401 et seq., 1999) regulates air emissions from area, stationary, and mobile sources, and authorizes the U.S. Environmental Protection Agency (EPA) to establish National Ambient Air Quality Standards (NAAQS) to protect public health and the environment. Sections 107 and 110 of the *Clean Air Act* give each State responsibility for ensuring that pollution levels within their borders are consistent with NAAQS.

Clean Water Act

The *Clean Water Act* (CWA) (33 USC parts 1251 et seq., 2000), formally known as the *Federal Water Pollution Control Act*, was passed to restore and protect the waters of the U.S. CWA established the basic structure for regulating discharges of pollutants into the waters of the U.S. It continued requirements to set water quality standards for all contaminants in surface waters and gave EPA the authority to implement pollution control programs. In addition, CWA recognized the need for planning to address the critical problems posed by non-point source pollution, such as that generated by agricultural production (e.g., runoff and leaching of pesticides and fertilizers).

Endangered Species Act

The *Endangered Species Act* (ESA) (16 USC parts 1531 et seq., 1988) was enacted to conserve threatened and endangered species and the critical habitats in which they exist. When a species is designated as threatened with extinction, a recovery plan that includes restrictions on cropping practices, water use, and pesticide use is developed to protect the species from further population declines. All Federal agencies are required to implement ESA by ensuring that their actions do not jeopardize the continued existence of any listed species. Section 7 of ESA requires that project areas must be checked against U.S. Fish and Wildlife Service and State listings of threatened and endangered species and critical habitat.

ESA defines an endangered species as one that is in danger of extinction throughout all or a significant portion of its range. Threatened means a species is likely to become endangered within the foreseeable future. These designations may be applied to all species of plants and animals, except pest insects. A species may be threatened at the State level, but that same designation does not necessarily apply across the U.S., as species numbers may be greater in other States. Critical habitat is defined by ESA as areas that are essential to the conservation of listed species.

Executive Order 11514, Protection and Enhancement of Environmental Quality

Executive Order (EO) 11514, *Protection and Enhancement of Environmental Quality* (35 *Federal Register* [FR] 4247, 1977), mandated the Federal government to provide leadership in protecting and enhancing the quality of the environment to sustain and enrich human life. Federal agencies are required to initiate measures needed to direct their policies, plans, and programs so as to meet national environmental goals.

Executive Order 11988, Floodplain Management

EO 11988, *Floodplain Management* (42 FR 26951, 1979), compels Federal agencies to restore and preserve the natural and beneficial values served by floodplains by: 1) avoiding short-term and long-term adverse impacts associated with the occupancy and modification of floodplains; and 2) avoiding direct and indirect support of floodplain development wherever there is a practicable alternative. Federal agencies are required to take actions that will reduce the risk of flood loss and minimize the impact of floods to human safety, health, and welfare.

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (59 FR 32, 1995), requires Federal agencies to make achieving environmental justice part of their mission by considering whether their programs, policies, and activities may have adverse impacts to minority or low-income populations. This EO emphasizes the importance of the public participation process, directing each Federal agency to provide opportunities for community input in the *National Environmental Policy Act* (NEPA) process by providing access to public documents and furnishing notices and hearings.

Food Security Act of 1985

The Conservation Reserve Program (CRP) was established under Title XII of the *Food Security Act of 1985* (16 USC part 3831, 1996). The purpose of CRP is to cost-effectively assist owners and operators in conserving and improving soil, water, and wildlife resources on their farms and ranches. Highly erodible and other environmentally sensitive acreage, normally devoted to the production of agricultural commodities, is converted to a long-term resource conservation cover. Conservation compliance provisions for highly erodible land are commonly referred to as *Sodbuster* provisions. Wetland conservation provisions, commonly known as *Swampbuster* provisions, help preserve the environmental functions and values of wetlands, including flood control, sediment control, groundwater recharge, water quality, wildlife habitat, recreation, and aesthetics.

The *Farm Security and Rural Investment Act of 2002*, commonly known as the *2002 Farm Bill*, authorizes CRP through 2007 and raises the overall enrollment cap to 39.2 million acres (16 USC part 3831, 1996). CREP is authorized pursuant to the *Federal Agriculture Improvement and Reform Act of 1996* and is a subset of CRP (7 USC parts 7201 et seq., 1998).

National Environmental Policy Act

NEPA is intended to help Federal officials make decisions that are based on consideration of the environmental consequences of their actions, and to take actions that protect, restore, and enhance the environment. NEPA mandates that Federal agencies consider and document the impacts that major projects and programs may have to the environment. The Council on Environmental Quality provides implementing regulations (40 *Code of Federal Regulations* [CFR] parts 1500 et seq., 2006). NEPA guidance for the Farm Service Agency is obtained through *Environmental Quality and Related Environmental Concern—Compliance with the National Environmental Policy Act* (7 CFR parts 799 et seq., 2007).

National Historic Preservation Act

The *National Historic Preservation Act* (NHPA) (16 USC part 470, 2000) establishes as Federal policy the protection of historic properties and their values. Subsequent amendments designate the State Historic Preservation Office (SHPO) or the Tribal Historic Preservation Office (THPO) as the party responsible for administering programs in the States or reservations. Federal agencies are required to consider the effects of their undertakings on historic resources, and to give SHPO/THPO a reasonable opportunity to

comment on those undertakings. NHPA implementing regulations (36 CFR parts 800.3–800.13, 2006) govern compliance with Section 106 of NHPA, which must be followed in planning any Federal agency activity and in the ongoing management of agency resources.

REFERENCES

7 CFR parts 799 et seq. 2007. "Environmental Quality and Related Environmental Concerns—Compliance with the National Environmental Policy Act." Farm Service Agency, Department of Agriculture. *Code of Federal Regulations*. U.S. Government Printing Office via GPO Access. Available via http://www.gpoaccess.gov/cfr/index.html. January 1. Accessed January 29, 2007.

36 CFR parts 800.3–800.13. 2006. "Subpart B—The Section 106 Process." Protection of Historic Properties. Parks, Forests, and Public Property. Advisory Council on Historic Preservation. *Code of Federal Regulations*. U.S. Government Printing Office via GPO Access. Available via http://www.gpoaccess.gov/cfr/index.html. July 1. Accessed August 1, 2006.

40 CFR 30 parts 1500 et seq. 2006. "Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act." Chapter 5. Council on Environmental Quality, Executive Office of the President. *Code of Federal Regulations*. U.S. Government Printing Office via GPO Access. Available via http://www.gpoaccess.gov/cfr/index.html. July 1. Accessed August 1, 2006.

35 FR 4247. 1977. Executive Order 11514, as amended. "Protection and Enhancement of Environmental Quality." *Federal Register*. U.S. National Archives and Records Administration. Available via http://www.archives.gov/federal-register/codification/executive-order/11514.html. Accessed February 23, 2006.

42 FR 26951. 1979. Executive Order 11988, as amended. "Floodplain Management." *Federal Register*. U.S. National Archives and Records Administration. Available via http://www.archives.gov/federal-register/codification/executive-order/11988.html. Accessed February 23, 2006.

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16 USC parts 1531 et seq. 1988. "Endangered Species Act of 1973," as amended. *United States Code*. U.S. Government Printing Office via GPO Access. Available via http://www.gpoaccess.gov/uscode/index.html. Accessed February 23, 2006.

16 USC part 3831. 1996. "Conservation Reserve," as amended. *United States Code*. U.S. Government Printing Office via GPO Access. Available via http://www.gpoaccess.gov/uscode/index.html. Accessed February 23, 2006.

33 USC parts 1251 et seq. 2000. "Federal Water Pollution Control Act of 1972," commonly referred to as the *Clean Water Act*, as amended. *United States Code*. U.S. Government Printing Office via GPO Access. Available via http://www.gpoaccess.gov/uscode/index.html. Accessed February 23, 2006.

42 USC 85 parts 7401 et seq. 1999. "Clean Air Act," as amended. *United States Code*. U.S. Government Printing Office via GPO Access. Available via http://www.gpoaccess.gov/uscode/index.html. Accessed February 23, 2006.

APPENDIX C
SUMMARY OF CONSERVATION PRACTICES

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APPENDIX C—SUMMARY OF CONSERVATION PRACTICES

Following this paragraph is a summary of Farm Service Agency (FSA) conservation practices (CPs) for the proposed Conservation Reserve Enhancement Program (CREP) agreement for the Illinois River Watershed in Arkansas as described in *Agricultural Resource Conservation Program for State and County Offices* (FSA 2007) commonly referred to as 2-CRP (Revision 4). These National CPs have been modified specifically for the Arkansas CREP agreement as detailed in the following summary.

CP22—Riparian Buffer and CP29—Marginal Pastureland Wildlife Habitat Buffer

Description:
Detailed descriptions of CP22 and CP29 are provided in 2-CRP (Revision 4) (FSA 2007), exhibit 9 pages 86, and 135 respectively.

Modifications:

Stream bank stabilization will be implemented before riparian vegetation is restored or established and will be allowed at a cost-share rate of 50 percent.

The minimum combined width of zones 1 and 2 will be equal to 30 percent of the width of the geomorphic floodplain but never less than 50 feet or greater than 100 feet. This is the minimum width for the buffer to function properly and the landowner must install this much. The landowner can then choose to install additional buffer out to a 300-foot program maximum (CP22). Additional buffer can be enrolled under the infeasible to farm/graze definition (16 *United States Code* [USC] part 3831, 1996).

The infeasible to farm/graze definition will also apply to CP29. Producers may request a waiver to enroll infeasible to farm/graze in excess of 25 percent.

Winter feeding facilities composed of a covered heavy use area (Natural Resources Conservation Service [NRCS] Practice 588—Roof Runoff Structure) combined with a dry manure storage area (NRCS Practice 313—Waste Storage Facility) and a cement water tank will be allowed at a cost-share rate of 50 percent. These facilities will be constructed out of the geomorphic floodplain. They will be a combination of NRCS practices 561 and 313, with a roof over the heavy use area.

Alternative water sources may be developed within 1,500 feet of the edge of zone 3 with county committee approval to encourage upland pasture use for grazing and floodplain pasture use for haying.

Watering facilities will allow up to 1,500 feet of pipeline with county committee approval.

The maximum dollar amount allowed for water development, water facilities, and pipeline ($3,000, $2,000, and $2,000 respectively) will be per 0.5 mile of stream rather than per contract.

When two eligible tracts are separated by a wooded area, fence through the treed area will be allowed at a cost-share rate of 50 percent.

REFERENCE

16 USC part 3831. 1996. "Conservation Reserve," as amended. *United States Code*. U.S. Government Printing Office via GPO Access. Available via http://www.gpoaccess.gov/uscode/index.html. Accessed February 23, 2006.

FSA. 2007. *Agricultural Resource Conservation Program for State and County Offices*, Revision 4, Amendments 1 through 10, Farm Service Agency, U.S. Department of Agriculture. Washington, Available at http://www.fsa.usda.gov/Internet/FSA_File/2-crp.pdf. Accessed April 11, 2007.

APPENDIX D
NET PRESENT VALUE ANALYSIS

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APPENDIX D—NET PRESENT VALUE ANALYSIS

Data used for the net present value analysis for the proposed Conservation Resource Enhancement Program agreement for the Illinois River Watershed in Arkansas over 15 years is shown on the following page of this appendix.

Year	Discount Factor	Establishment Costs	Cost Share (FSA)	Wetlands Restoration Cost Share	SIP	PIP	TNC Incentive Payment	Rental Rate	Incentive Payment	Maintenance	Lost Jobs	Lost Farm Income	Sum	NPV
2007	1.00	-1,718,750	859,375	195,938	625,000	242,000	1,000,000	256,250	192,188	32,920	-122,000	-438,777	1,124,142	1,124,142
2008	0.95							256,250	192,188	32,920	-122,000	-438,777	-79,420	-75,449
2009	0.90							256,250	192,188	32,920	-122,000	-438,777	-79,420	-71,677
2010	0.86							256,250	192,188	32,920	-122,000	-438,777	-79,420	-68,093
2011	0.81							256,250	192,188	32,920	-122,000	-438,777	-79,420	-64,688
2012	0.77							256,250	192,188	32,920	-122,000	-438,777	-79,420	-61,454
2013	0.74							256,250	192,188	32,920	-122,000	-438,777	-79,420	-58,381
2014	0.70							256,250	192,188	32,920	-122,000	-438,777	-79,420	-55,462
2015	0.66							256,250	192,188	32,920	-122,000	-438,777	-79,420	-52,689
2016	0.63							256,250	192,188	32,920	-122,000	-438,777	-79,420	-50,055
2017	0.60							256,250	192,188	32,920	-122,000	-438,777	-79,420	-47,552
2018	0.57							256,250	192,188	32,920	-122,000	-438,777	-79,420	-45,174
2019	0.54							256,250	192,188	32,920	-122,000	-438,777	-79,420	-42,916
2020	0.51							256,250	192,188	32,920	-122,000	-438,777	-79,420	-40,770
2021	0.49							256,250	192,188	32,920	-122,000	-438,777	-79,420	-38,731
TOTAL			859,375				1,000,000	3,843,750		493,800	**-1,830,005**	**-6,581,662**	**12,258**	**351,051**
NPV per Acre														**18**

Assumptions:

1) Discount rate of 5%
2) Rental rate is 100% of established county rates
3) Maintenance fee of $4/acre
4) Maintenance fee of $6–9 for CP22
5) USDA covers 50% of establishment costs
6) An additional 25% of establishment costs provided for CP-23 and CP-23A
7) SIP is $100/acre
8) PIP is 40% of eligible cost share
9) The Nature Consurvancy provides a one-time conservation easement payment of $160/acre

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